## Claims

**What is claimed:**

1. A method for controlling the operation of a flexible cross-connect system which has a plurality of cards including an active control unit, a redundant control unit, a plurality of interface cards, an active cross-connect unit, a redundant cross-connect unit, and a backplane forming a plurality of data buses, the data buses acting as communications links between the plurality of cards, the method comprising:

monitoring the operational status for each one of the plurality of cards and each one of the communications links within the flexible cross-connect system;

determining when the operational status of any of the plurality of cards or the communications links indicates that the card or the communications link is non-operational; and

autonomously switching from the non-operational active card to an associated redundant card or from the non-operational active communications link to an associated redundant communications link.

2. The method of claim 1, further comprising

determining when the non-operational active card or the non-operational active communications link requires maintenance; and

reporting that maintenance is required for the non-operational active card or the non-operational active communications link.

3. The method of claim 1, further comprising preventing communications from being sent to the non-operational active card or over the non-operational active communications link.

4. The method of claim 3, wherein a card is flagged with a non-operational status if the card is receiving a software upgrade.

5. The method of claim 1, further comprising

recording data related to each card in a database; and

updating the database to reflect changes to any of the cards, wherein the changes include maintenance performed on, replacement of, or user configuration changes.

6. The method of claim 1, further comprising detecting and reporting when any card or communications link has a change in operational status.

7. The method of claim 6, wherein said detecting and reporting includes:

tracking how long the change in operational status persists;

determining when the change in operational status has persisted for at least a predetermined amount of time; and

reporting the change in operational status when the predetermined amount of time is exceeded.

8. The method of claim 7, wherein said detecting and reporting further includes discarding the change in operational status when the change in operational status does not persist for the predetermined amount of time.

9. The method of claim 1, wherein the flexible cross-connect unit is a first node within a network, and further comprising maintaining a connection map for the network.

10. A computer program embodied on a computer readable medium for controlling the operation of a flexible cross-connect system which has a plurality of cards including an active control unit, a redundant control unit, a plurality of interface cards, an active cross-connect unit, a redundant cross-connect unit, and a backplane forming a plurality of data buses, the data buses acting as communications links between the plurality of cards, the computer program comprising:

a code segment for monitoring the operational status for each one of the plurality of cards and each one of the communications links within the flexible cross-connect system;

a code segment for determining when the operational status of any of the plurality of cards or the communications links indicates that the card or the communications link is non-operational; and

a code segment for autonomously switching from the non-operational active card to an associated redundant card or from the non-operational active communications link to an associated redundant communications link.

11. The computer program of claim 10, further comprising

a code segment for determining when the non-operational active card or the non-operational active communications link requires maintenance; and

a code segment for reporting that maintenance is required for the non-operational active card or the non-operational active communications link.

12. The computer program of claim 10, further comprising a code segment for preventing communications from being sent to the non-operational active card or over the non-operational active communications link.

13. The computer program of claim 12, wherein a card is flagged with a non-operational status if the card is receiving a software upgrade.

14. The computer program of claim 10, further comprising

a code segment for recording data related to each card in a database; and

a code segment for updating the database to reflect changes to any of the cards, wherein the changes include maintenance performed on, replacement of, or user configuration changes.

15. The computer program of claim 10, further comprising a code segment for detecting and reporting when any card or communications link has a change in operational status.

16. The computer program of claim 15, wherein said code segment for detecting and reporting includes:

a code segment for tracking how long the change in operational status persists;

a code segment for determining when the change in operational status has persisted for at least a predetermined amount of time; and

a code segment for reporting the change in operational status when the predetermined amount of time is exceeded.

17. The computer program of claim 16, wherein said code segment for detecting and reporting further includes a code segment for discarding the change in operational status when the change in operational status does not persist for the predetermined amount of time.

18. The computer program of claim 10, wherein the flexible cross-connect unit is a first node within a network, and further comprising a code segment for maintaining a connection map for the network.

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